

**Amendment to the Specification**

Please amend the specification as shown:

At paragraph 0004, please add period to end of final sentence and make corrections as shown.

Standard methods for measuring FRC and compliance for the whole lung have been known for years (Meneely *et al.*, *Am. J. Med.* 28:824-831 (1960); Darling *et al.*, *J. Clin. Invest.* 19:609-618 (1940); Burns *et al.*, *Am. Rev. Respir. Dis.* 130:580-583 (1984); Dubois *et al.*, *J. Clin. Invest.* 35:322-326 (1956)). The use of hyperpolarized noble gases, such as  $^3\text{He}$ , has been demonstrated to be useful in the imaging of gas distribution (ventilation) in the human lung (Middleton *et al.*, *Mag. Res. Med.* 33:271-275 (1995); MacFall *et al.*, *Rad.* 200:553-558 (1996); Kauczor *et al.*, *Rad.* 201:564-568 (1996); [-]Kauczor *et al.*, *J. Mag. Res. Imag.* 7:538-543 (1997); Roberts *et al.*, *Mag. Res. Med.* 44(3):379-382 (2000); Black *et al.*, *Rad.* 199(3):867-870 (1996); de Lange *et al.*, *Rad.* 210(3):851-857 (1999); Altes *et al.*, *J. Mag. Res. Imag.* 13(3):378-384 (2001); Salerno *et al.*, *Mag. Res. Med.* 46:667-677 (2001); Gierada *et al.*, *NMR Biomed.* 13(4):176-181 (2000)). However, what has not been available until the present invention, has been a method for high resolution imaging of the gas spaces in the lung, with very high contrast between the signal intensity for the gas phase compared to the tissue phase, which would permit the combined imaging of FRC distribution and lung compliance.

At paragraph 0011, please make corrections as shown:

The methods further comprise dividing the lung images into as many distinct voxels as imaging resolution permits. Local lung volume is calculated by dividing average signal intensity in each voxel by tracheal signal intensity. The average concentration of  $\text{H}^3\text{He}$  in each voxel is determined by dividing an amount of  $\text{H}^3\text{He}$  in each voxel by volume of the voxel, and calculating amount of  $\text{H}^3\text{He}$  in each the voxel by multiplying concentration of  $\text{H}^3\text{He}$  in the gas space of the voxel by volume of gas space in the voxel. Local FRC is determined by dividing signal intensity in the voxel by tracheal signal intensity, and then multiplying by volume of the voxel. Finally compliance of the voxel is determined by calculating pressure difference between alveolar gas inside the voxel and pleural space outside of the lung, and calculating local compliance in the voxel by dividing the volume of the voxel by transmural pressure gradient

(tracheal minus esophageal pressures). ~~[Local FRC is computed by dividing signal intensity in the voxel by tracheal signal intensity, and then multiplying by volume of the voxel]~~. The whole lung FRC is determined by summing all of the local FRC values in each voxel.